Survival is a concept that links religion and science in that it figures prominently in the concerns of both enterprises. Consequently survival is a concept which forms a place of meeting and dialogue between science and religion. As such we can expect that survival not only opens up avenues for observing the interaction of the two but also illumines the way in which tensions arise between them and even why that tension is at times accentuated. In what follows I present eight basic theses that have arisen in my own theological reflection upon the meaning of survival. The theses obviously do not present the resolution of important problems so much as they clarify the questions themselves.

1. Survival becomes the center of attention in the public discussion of values particularly when scientists are part of that discussion. When it arises in the conversation, survival tends to preempt the discussion; it becomes the value that is the point of reference for all discussants.

Why is it that survival so preempts the discussion of values? Why does it seem to drive out other values from basic consideration? It would seem that the seriousness which survival lends to any discussion is the key to understanding the attention it receives. Arthur J. Dyck of Harvard University has introduced a category that is helpful in this regard. He calls it “gap-induced requiredness.” This category explains the reality of moral and nonmoral oughtness. We conclude that something “ought” to be if it is necessary in order to rectify a troubling “gap.” Examples of such requiredness in nonmoral contexts are an unfinished melody or a defective sentence. Given with our factual experience are the incompleteness of the melody or sentence and also

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the sense that completion or filling the gap is required. Moral requiredness is a gap which we feel compels us to act so as to fill the gap in order to improve the situation. A claim is made upon us in this moral experience, which imposes upon us a sense of duty or obligation to fill the gap.

Dyck sets down several criteria which the experience of gap-induced requiredness must fulfill: The requiredness must appear to be a true gap from an impersonal point of view; it must be an invariant gap, that is, one that would appear to any person in the same situation; finally it must demand that the self will an action of gap closing, that is, it must be a genuine performative.

Such an argument may help us appreciate why survival tends to monopolize value discussions. Survival in any discussion, but particularly when it is described by scientists, bringing as they do a certain empirical earnestness to their opinions, speaks of a very serious gap, which in turn suggests a serious sense of requiredness to fill it. Certain scientific arguments—those of sociobiology, for example—engage in a gap-closing argument that goes something like this: If certain basic need \( x \) is not attended to, the human (or natural) system is threatened, that is, it will not continue or at least it will not continue well or as it is designed to function. There is an inferred gap here; we ought to do \( x \) or \( y \) or \( z \) in order that this gap not continue to exist; \( x \) or \( y \) or \( z \) becomes values, oughts, obligations. If basic needs are not attended to, scientists often argue, human beings will not continue to exist or at least will not continue to exist well or as they are designed to exist. Given this impressive, even ultimate, gap, most people will respond by insisting that we all ought to do something to close or fill the gap. Since ultimate or life-threatening gaps must be dealt with before other desirable or less urgent needs, survival rises to the top as the dominant issue in a discussion about values.

2. It is not perfectly clear what science is telling us about the subject of survival inasmuch as there seem to be ambiguity and even contradiction on the question of just what it is that does survive or ought to survive.

Let us survey some scientific opinions on the survival of human beings. George Edgin Pugh in his *The Biological Origins of Human Values* clearly speaks of the survival of individuals. His study illuminates values such as the opportunity to dominate, the opportunity to contribute to the common enterprise, face-to-face relation of listening and talking, humor, fairness, all of which speak of the fundamental needs of human individuals. Without the satisfaction of these
needs, human individuals cannot continue to exist or to exist well or to exist as they were meant to.

There are scientists who emphasize the group as the unit of survival. The ecologist often will speak in such terms, drawn even larger. The ecologist speaks of the survival of entire species and of the total ecosystem. A number of sociobiologists have spoken to us rather strongly of the gene as the unit of survival. Richard Dawkins speaks wittily of "a human being as a gene's way of producing more genes." This is his variation of the *bon mot* that a chicken is an egg's way of producing more eggs.

Others, such as Donald T. Campbell and Ralph Wendell Burhoe, seem to say that culture is the element that survives or fails to survive. Burhoe has spoken of evolution itself as the reality that survives. It does make a difference to human beings and to their value system how we judge what it is that survives. Actions and attitudes will be different if it is individual human survival that is of dominant importance from what would be the case if it is genes or culture. We need help from scientists to settle this question. If it is the case that all of the above answers to the question "What survives?" are in some sense correct, perhaps we need a philosopher to assist us in developing a proper hierarchy of understandings about survival. At the present time it is not clear just what unit of reality we are speaking of when we discuss survival.

3. From what I do hear from scientists, survival is not necessarily a pretty thing. Our common language tends to obscure this fact. Scientific discussions today seem to describe the survival process in terms of "red in tooth and claw," while at the same time muting the grimness of such a description.

Survival, for one thing, is accompanied by a high rate of failure. Most species that have ever existed have not survived but rather have become extinct. I have heard estimates that the average life expectancy of a species is from twenty to forty million years. If true, these figures raise the question as to just what survival is and what it means. If we look upon it as a temporary phenomenon, then the fact of extinction is not itself a negative consideration. To value "survival," under such circumstances, is to value successful reproduction and living for a given period of time. The further questions then turn to what is considered to be a desirable length of survival time—the full twenty million years or less? If the individual is the unit of survival, is its survival for a full lifetime in any way rendered more or less valu-
able by the degree of the success which the species achieves in its evolutionary trajectory? If the species does not survive for a full term—if “full term” is even applicable here—what becomes the possible meaning of the individual’s survival? Simply to have lived and “tried”?

Survival interests and strategies in one species or individual may well conflict with those of others. My survival may well depend on some other species’ or individual’s death. This is what “red in tooth and claw” refers to. If human beings are considering survival for themselves, are they at the same time willing that others not survive? On what grounds? What sorts of values and criteria can sustain such a process of volition?

Some interpretations of the survival struggle are definitely destructive of a full and authentic understanding of what it means to be a human being—at least destructive of such an understanding as it is set forth by most humanistic philosophies and religious world views. For example, I have heard survival discussed in terms of the periodic mating season of the walrus, according to a sociobiological concept of survival as it pertains to the genes. In such a view, survival is the effort of males to assure that their sperm find as many hospitable living spaces as possible, while for the females it is to be hospitable to the males who seem to offer the most certain prospect of survival for their babies. The individuals and the species are manipulated by the genes in this scenario, which we might designate as the “on the beach” scenario because of the locale of the walrus mating enterprise. This scenario is not ludicrous because it does indeed explain a good deal about the ways in which the males and females of a number of species behave at mating time as well as in the care of their young. Nevertheless it is a scenario that goes against the humanist/religious view of what humanity is because it renders unnecessary or incomplete so much of what we would include in our sense of what it is we are after when we engage in the effort to survive.

In my estimation the conversation about human survival tends to minimize the harsh reality of what the survival game is really like in the nature around us and within us.

4. Survival is a difficult concept for the theologian to take with theological seriousness because it is inevitably linked with functionalism and hence reductionism.

When survival is the value, everything is judged by whether it is functional in such a way as to serve the struggle for survival. This functionalist consideration introduces the reductionism which is so
repugnant to theologians. Either everything is reduced to being a survival strategy as such or it is assessed as being an inadequate strategy. The reason for the theologian’s discomfort with reductionism is fairly clear. It threatens to judge the human enterprise by criteria which may leave out of consideration the values which the theologian considers essential.

Such reflections emphasize how important it is to fashion a definition of what survival is and what the unit of survival is. If the scenario “on the beach” is normative, then theologians (and others) are correctly worried about reductionism because the survival process under such conditions renders so much of human activity, including religion, irrelevant to survival or else subsumes those activities under a genetic model that seems to leave out what is most important to human existence.

The theologian can deal with functionalism/reduction in two ways. One moves by way of insisting that function is not enough and that reductionism is wrong because it is simplistic. This approach sets up the theological system of truth as a separate system that exists alongside the scientific explanation, in grim hostility. The other response is to envelop the functionalist/reductionist framework with the theological framework. This response suggests that function is thoroughly appropriate a category and that reductionism in the sense of serving some other rationale is also a suitable concept. The problem with the existing functionalist/reductionist explanations is that they lack a large enough context within which to assess them. In theological terms they need the context of ultimacy, of God. God as creator does have survival in mind, survival defined in an appropriately theological fashion, and life does serve the function of promoting that survival. In this way a kind of reduction of all life strategies to survival strategies is not amiss. The challenge then is to consider whether the theological definitions are plausible and consistent with the scientific explanations.

5. Either of the theological responses described in thesis 4 may be difficult for the scientist.

The first response, which in effect sets up two completely separate and isolated systems of knowledge and discourse, that of science and that of religion, declares science to be irrelevant to the religious quest and to the traditional values and concepts of religion. The scientist rightly either takes umbrage at this theological arrogance or simply dismisses religion as misguided and theology as obscurantist. The second response, which seeks to take science up into what may be
viewed by some as an alien system of knowledge, may puzzle or offend the scientist. The offense comes from what appears to be an attempt to marry science to an ideology or to an ecclesiastical structure that the scientist cannot relate to the scientific enterprise. The puzzlement emerges from the attempt to utilize such concepts as “ultimacy,” “God,” and “purpose” for explanatory ends. These concepts appear to the scientist to be superfluous or too imprecise to serve as explanatory terms. It is difficult for the scientist to understand just why a theologian would wish to take survival into the religious vocabulary when it is clear from the outset that the theologian cannot work with the concept in the manner to which the scientist is accustomed.

6. There are several theological motifs, however, that press the Christian theologian to accept survival and functionalism within the theological system of explanation, despite the difficulties that accompany such an acceptance. These motifs are the doctrine of creation, the doctrine of humans as God’s cocreators, and the doctrine of the Incarnation.

The doctrine of creation asserts that all the universe belongs to God and has its origin in him and in nothing else, ultimately. Whatever may be the ambiguities that attend the scientific discussion of what is the primary unit of survival, the process of survival by natural selection and the mechanism of that process are intrinsic to the realm that God has created. That these mechanisms are difficult for the theologian to comprehend, that they may be described in reductionist terms that leave little room for religious dimensions, that they seem to work in ways that violate the basic human values—none of these considerations can gainsay the judgment that the framework of the survival process and the mechanisms of survival are part of what God has created. Therefore they are within the theologian’s purview even before he acknowledges them as such.

Human beings represent a distinctive segment of the divine creation in that they appear to have been created as creatures who are free to influence the processes of creation itself. Humans alone have self-consciousness, the ability to reflect, to make decisions on the basis of reflection, to act upon decisions, to assess such actions, take responsibility for them, and act again upon the assessment. These distinctive gifts make it possible for humans to be termed cocreators, not in the sense that they have constituted themselves as such but rather in that they have been constituted, whether by God (as the religious believer would say) or by the process of evolution (as a secular humanist might say), as cocreators. For the theologian this is testimony that God de-
sired creatures who could share self-consciously and responsibly in the creative process. If this cocreating creature is also subject to the need to survive and to the mechanisms of survival, then the theologian must accept that even the most complex and influential creature, the creature that can acknowledge its creator-God, has been put together on the loom of the survival process.

The doctrine of creation suggests to the theologian that all living things have been fashioned with the impulsion to survive according to certain discernible mechanisms; the doctrine of humans as cocreators suggests that the crowning species of the realm of life is also so created. The doctrine of the Incarnation reminds the theologian that this realm created on the loom of the survival thrust is also the realm in which God's redemptive action is embodied. The realm of life in which survival reigns as a dominant motif is deemed a fit vessel not only of creation but also of redemption.

There are those who insist that the Hebrew and Christian traditions provide no basis for supposing that God is concerned with human survival, that rather those traditions affirm that God in his wisdom may have ordained a course of events that is consistent with the extinction of humans. To these opinions we must answer that they are somewhat confused and misplaced. The most fundamental affirmation in the Judeo-Christian traditions concerning God is that of his faithfulness to and love for his creation. This faithfulness and love transcend divine wrath and anger at sin. The theologian has no alternative but to assume that God's faithfulness will now allow creation, including the human portion of that creation, to go unconsummated. As I suggest below, when the term “survival” is incorporated within the theological purview, it takes on the meanings associated with consummation and destiny under God. Such meanings accompany the theological valorization of the term. To the critics we must say that although the traditions in question do not suggest that the human species or the earthly ecosystems will go on forever as they now are, and even though the termination of those systems (including the human) is certainly not precluded, their nonsurvival, if that means the obliteration of the systems and their worthfulness to the rest of creation and to God, certainly seems to be inconsistent with what the Judeo-Christian traditions affirm.

These theological motifs will not appear to be cogent arguments to anyone but the theologian. Nevertheless they are the sorts of warrants to which the Christian theologian is predisposed to give great respect. As I have described them, they all make the same basic argument: Christian faith gives the created order very significant status within the purposes of God; if therefore it is determined that the survival
thrust is a major motif operative within that order, a motif that gives shape and dynamic to the created order, even where that order includes human beings, the theologian must make the effort to discern how that motif is related to God.

7. Thesis 6 requires that the concepts “survival” and “functionalism” be valorized by the theologian in a theological key so that they become clearly related to the religious reality upon which the theologian focuses attention.

Elsewhere I commented on the theological “valorization” of scientific terms and concepts. I suggested that until it is theologologically valorized we have no real sense of the religious significance of a term or concept. A vivid analogy may be made to petroleum. Until it is given a use and that use is in turn given a social value, petroleum simply will be an unknown quantity under the earth’s surface. After its valorization it becomes a commodity which can be handled, priced, and exchanged for money, goods, and services. At the present time survival is not a commodity which the theologian can handle or which the religious community can understand.

If the survival thrust is a major motif within the order of living things, then the theologian must ask about its relation to God and his purposes for the creation. This is the quintessential theological question. For any religion which prizes the material realm and grants them dignity within God’s purposes, even assigns their origin to God, the survival motif and its mechanisms must be said to be part of God’s intentions. Not all religions do prize the material realm, but Judaism, Christianity, and Islam do. Therefore theologians from these communities certainly will want to relate survival to God’s intentions. Survival thus is dealt with functionally; it is subsumed under God’s own functionalism, the divine purposes for the creation. This does not mean that God’s purposes are subsumed under the mechanisms of genetic survival or species survival or even ecosystem survival. It means that these mechanisms are part of something larger, namely, the divine intentions. Furthermore, this line of argument does not mean that any single species’ survival is given eternal divine sanction since the survival of one species may be rendered impossible by the incursion of another species, just as surely divinely sanctioned. Nor does our argument suggest that God cannot permit the created order as we know it to be altered or even destroyed. Rather the theological valorization of survival implies that the survival process is created by God and that it fits his purposes.

For survival to fit the divine purpose according to the scheme of Jewish-Christian-Islamic belief it must involve two considerations:
first, that the survival process be part of and harmonious with God's activity of perfecting or consummating the created order and, second, that the concept of survival be enlarged to include the religious vision of the destiny which God prepares for the creation since this destiny is what survival aims at in the religious purview.

The first of these raises many problems for the theologian. We simply do not understand how the mechanisms of survival by natural selection function to advance the creation's consummation. The pain and ugliness of the survival process are real; they do not fit our picture of the creation's consummation and perfection—at least not the picture which our present knowledge permits. Despite this puzzling ignorance, we must recognize that the struggle to survive and the mechanisms of survival that have been implanted within us are part of the rhythm of our pilgrimage toward consummation.

The second consideration raises problems for the scientist. The religious vision would insist that humans have not genuinely survived if such realities as love, justice, self-giving, and awe are not present. This vision also would insist that some ultimate standards of what the world is to become must be taken into account, however difficult this might be. It is precisely these issues which scientists like Campbell and Burhoe illumine with their thinking.

8. However cautiously, the theologian must relate survival to redemption and salvation. The relationship cannot be given much content, however, because of the ambiguity that surrounds the survival process.

Since every created process must be related in some way to God's work of creation and redemption, that is, to God's purposes, Jewish and Christian theologians have little choice but to relate survival and its mechanisms to God's most fundamental purpose, namely, the consummation and salvation of the creation. As thesis 7 suggests, however, when the theologian draws this relationship, the term "survival" should not be read as if it were the univocal equivalent of the term as it appears in scientific literature. The term has been religiously valorized, and it takes on, for the religious audience, the nuances that devolve from its being brought into relationship with God and divine purposes.

The most significant difference that theological valorization makes for the concept of survival is that it puts it in the larger context of the survival of what God intends for the creation. The scientific view does not rule out the idea that the survival process is a means to an end. The sociobiologists can allow, for example, that the process of mating on the beach serves the end of the gene's survival. The theological
perspective on survival insists that ultimacy is real and that it too serves to define survival. If this is so, then the end which survival serves is simply larger than ordinary empirical perspectives have envisioned thus far.

The logic of the concept of God in at least three religions (Judaism, Christianity, and Islam) demands that the process of survival and its specific mechanisms be valorized as instrumentalities within God's consummating activity in the created order. Empirically the process of survival is ambiguous, as theses 3 and 4 suggest. These ambiguities make it nearly impossible at the present time to fill the formal religious valorization of the concept of survival with material content. The grim, antihuman aspects of survival raise the problems of evil and theodicy. Before material content can be put into God's relationship to the survival process, those notoriously intractable problems would have to be dealt with satisfactorily. The ambiguity concerning the unit of survival poses, prima facie at least, a reductionism that does not allow God to be involved in the survival process. There are ways to deal with this difficult issue, and they must be pursued before a full theology of survival is possible.8

The first task that faces the theological community is to acknowledge the necessity of the process of theological valorization of survival concepts and the possibility of relating survival to God and his salvation. When that acknowledgment takes place, the difficult intellectual tasks can be pursued with the energy and competence they deserve and demand.

NOTES